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BATHURST CARIBOU COLLARING PROJECT

CONTWOYTO LAKE

JULY 26 - AUGUST 3

1979

N.W.T. Wildlife Service
Government of the Northwest Territories

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N.W.T. WILDLIFE SERVICE
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INTRODUCTION

A knowledge of movements and range boundaries of the Bathurst caribou herd is necessary to assess the probable effects of hunting and environmental disturbances on the population. Our objectives were to capture female caribou (Rangifer tarandus groenlandicus) and put neck collars on them. Sightings of collared caribou and return of collars from harvested animals will add to our knowledge of the movements and dispersal of that portion of the herd.

Many residents of settlements around Yellowknife, particularly the older people, were suspicious of our reasons for marking caribou. They questioned the harm done to the animal during the tagging process, and the long-term effects of tagging. Several meetings were held in various communities to explain the need to mark caribou and attempt to answer questions. One concern was that because a bull caribou's neck swells during the annual rut, collars would become too small in the fall. Therefore we decided not to collar large bulls. Some local hunters and trappers were employed for the project so they could report back to their communities.

Parker (1972) summarized previous tagging and recovery surveys of caribou at Contwoyto Lake. Of 96 cari-

bou tagged in 1960, three (3.1%) were recovered; of 21 tagged in 1964, none were recovered; and of 289 tagged in 1965, 14 (5.1%) were recovered. Our program took place at the same capture site at Contwoyto Lake. The site, located at 65° 17' N, 109° 40' W. (Fig. 1), is shallow and rocky.

Five people assisted me in the tagging program. They were: Ian MacDonald, a member of Katamavik; Fort Rae residents Leon Charlo and George Drybone; Yellowknife resident Louis Fat; and Matthew King from east of Yellowknife. D. Heard (through A.B. Stephenson) provided technical advice, collaring equipment, and monitored movements of the carbiou herd.

METHODS

In planning this project we referred to a report by Thomas (1960). The procedure used was as follows:

1. Men and equipment were transported to the capture site in a Twin Otter and a Turbo Beaver aircraft and a camp was established about 1.5 km from the crossing site (Fig. 2).

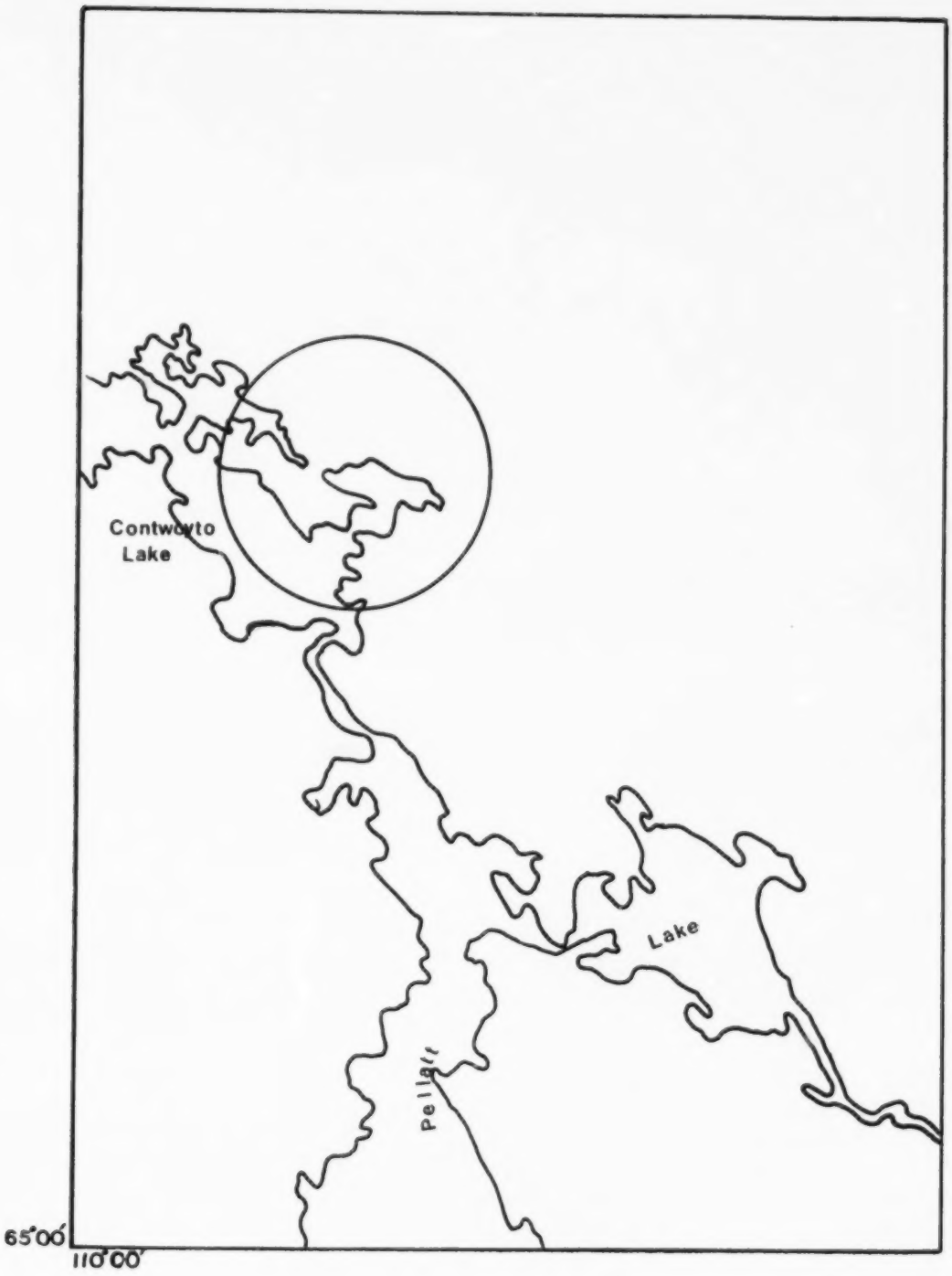

Figure 1. Map of Contwoyto Lake area showing the location of the 1979 Bathurst caribou collaring project.

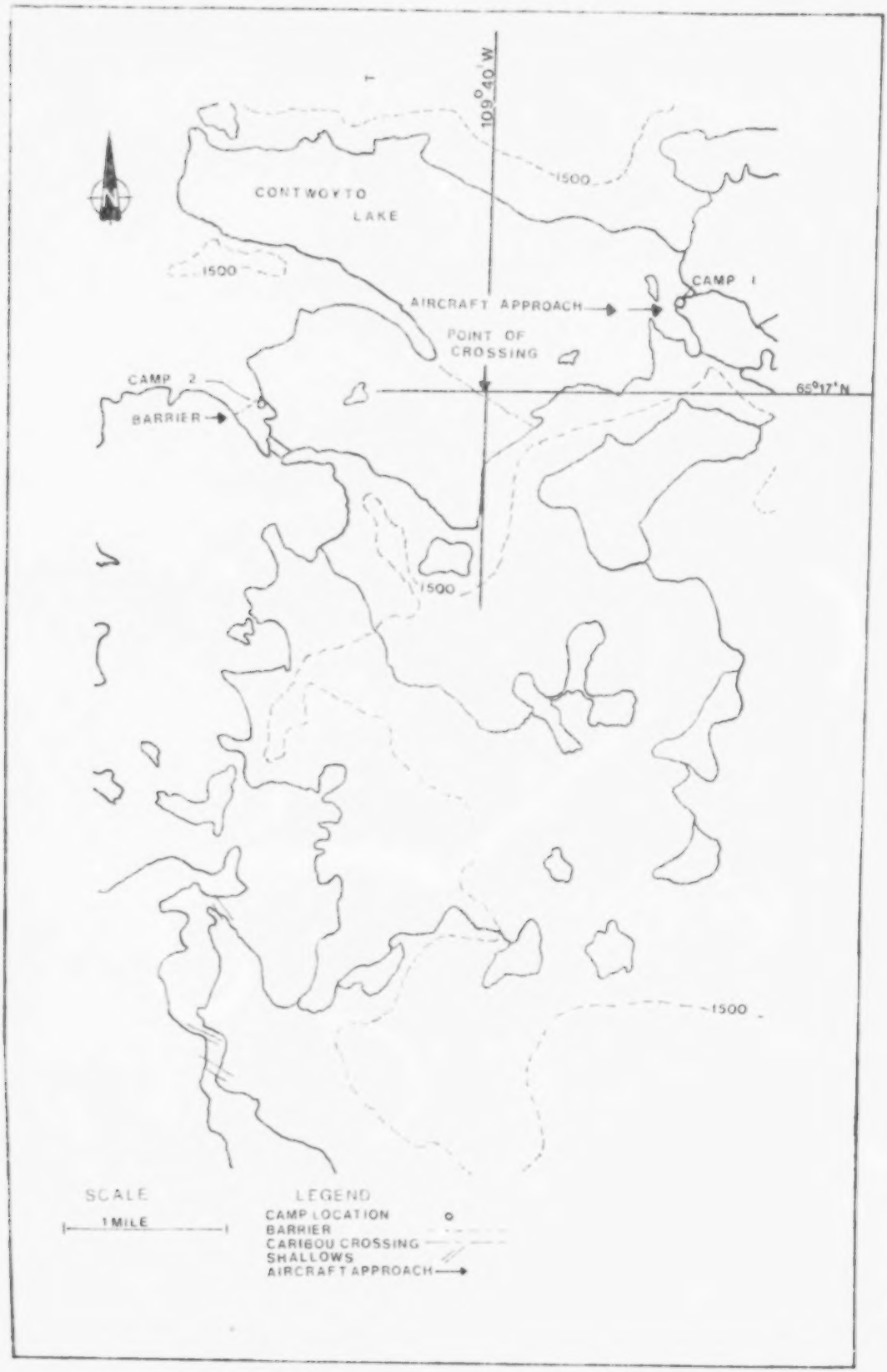

Figure 2. Camp locations and direction of aircraft approach.

2. A second camp was established at a crossing site that was too shallow for boat operation. From this site animals could be observed and deflected from their normal route to the deeper crossing. Barricades made of caribou antlers and flagging tape were used to deflect caribou.

3. Zodiac inflatable boats powered by 25 hp outboard motors were used to transport the crews to the swimming caribou. When the first few animals in a group had entered the water at the crossing, our crews left Camp # 2 by boat to intercept them. The direction of approach to the animals varied depending on their location, but often they were herded away from shore before any attempt was made to begin collaring.

4. The caribou were either grabbed by the scruff of the neck or brought alongside the boat with the aid of an aluminum crook. One man wrapped his arm around the head of the animal, at the same time covering its eyes. A second man brought both front legs over the edge of the boat and held them securely. The third man, who also operated the motor, put the collar in place and stapled it together with 1/4"

commercial Bostitch staples. The collars were made of plastic-coated fabric about 10 cm wide with large letters and numerals applied with vinyl paint.

RESULTS

The movement of the caribou herd was much earlier than expected. The major portion of the caribou herd had passed Contwoyto Lake by July 23 and our camp was not established until July 26.

Eight days were spent at Contwoyto Lake (Appendix A) and 202 caribou were collared in 5 days (Table 1). Six bulls and two calves were collared by mistake. About 5,000 caribou were seen in the vicinity (Appendix A).

Besides caribou we saw a total of 10 wolves (Canis lupus). Some may have been repeat sightings. The largest group contained four animals. Two muskoxen (Ovibos moschatus) were seen at Camp # 2 on July 28. One barren-ground grizzly bear (Ursus arctos) was seen at Camp # 2 on July 28 and later the same day at Camp # 1. A female White-fronted goose (Anser albifrons) and 12 young were observed at the south end of Contwoyto Lake, at the entrance to the river, on July 30.

Costs of the collaring operation are shown in Appendix B.

Table 1. Number of caribou tagged between July 28 and August 1, 1979 at the Contwoyto Lake site.

Date	No. of caribou	Number on tag
1979		
July 28	20	J1,J2,J3,J4,J5,J6,J7,J8,J9, KA,KD,KM*,KN*,N7,N8,N9,NH, PA,PG,PH,
July 29	105	KT,KK,KJ,KH,KG,KE,KC,AC,AD, AE,AG,AH,AJ,AK,AL,AM,AN,AP, AT,AU,AX,AY,AZ,A1,A2,A3,A4, A5,A6,A7,A8,A9,CA,CC,CD,CE,CG, CH,CJ,CK,CL,CM,CN,CP,CT,CU,CX,CY, CZ,C1,C2,C3,C4,C5,C6,C7,C8,C9,DA, DC,PC,PD,PE,N6,N5,N4,N3,N2,N1,NZ, NY,NX,NU,NT,NP,NN,NM,NL,NJ,NK, NG,NE,ND,NC,NA,M1,M2,M3,M4,M5,M6, M7,M8,M9,MZ,MY,MX,MU,MT,MP,MN, MM,LK,LL,LM,
July 30	59	DD,DE,DG,DH,DJ,Dk,DL,DM,DN,DU,DP, DT,DX,DY,DZ,D1,D2,D3,D4,D5,D6,D7,D8 D9,EA,EC,EG,EH,EJ,EK,EL,EM,EN,EP,LN LP,LT,LU,LX,LY,LZ,L1,L2,L3,L4,L5, L6,L7,L8,L9,MA,MC,MD,ME,MG,MH,MJ, MK,ML,
July 31	12	E7,E8,E9,EE,EU,GA,GC,GD,GE,GJ, GM,GN,
August 1	6	HL^2,HM^2,GZ^2,$G4^2$,HA^2,HD^2,
Total	202	

* Calves

^{2} Bulls

DISCUSSION

Although the number of caribou (202) fitted with collars is higher than previous capture efforts at this station, we do not expect many returns from hunters. The 5.1% recovery of tags from the earlier efforts (Parker 1972) suggests that we may receive about 10 collars from the animals in our program. Because collars are highly visible, we also expect to receive reports from people who have sighted the animals. It is possible that the greater visibility of collars may result in a higher selective kill and an increased percentage return of marked animals (Hawley et al. 1979). However, collars may not be retained as well as ear tags (Newosad 1972), and they may not be in place long enough to attain the 5.1% return Parker (1972) cites for ear-tags on Contwoyto Lake caribou.

Because groups of caribou are socially cohesive over a long period (Parker 1972 and Miller 1974), the caribou collared in the short time of our study may not be representative of the entire Bathurst caribou herd. The locations revealed by this group will be indicative of only a portion of the movements that may have been shown if the sample had been spread over a longer time period and greater area.

Nevertheless, the information on movements and degree of harvest will be helpful in management of the herd. Hopefully, the highly visible collars will give us a much greater return sample and reduce the very wide population confidence limits Parker (1972) obtained from his small sample.

No immediate adverse effects on the caribou were noted as a result of tagging. Animals that were turned from the shallow crossing at the second camp moved in various directions (Fig. 3). Some travelled north over a ridge and out of sight. Some moved back about 1 km and lay down or grazed. Several animals travelled out on a point to the west and usually returned, although a few animals were observed swimming to an island on the main lake. Most of the caribou arrived at the capture crossing from the northeast.

The caribou did not appear to alter their behaviour after being collared. Cows accepted the two calves collared. On one occasion, a calf seemed reluctant to join a collared cow which appeared to be its mother. Later however, we observed calves with collared cows. The rest of the herd seemed to accept collared animals and many groups were observed to contain collared caribou.

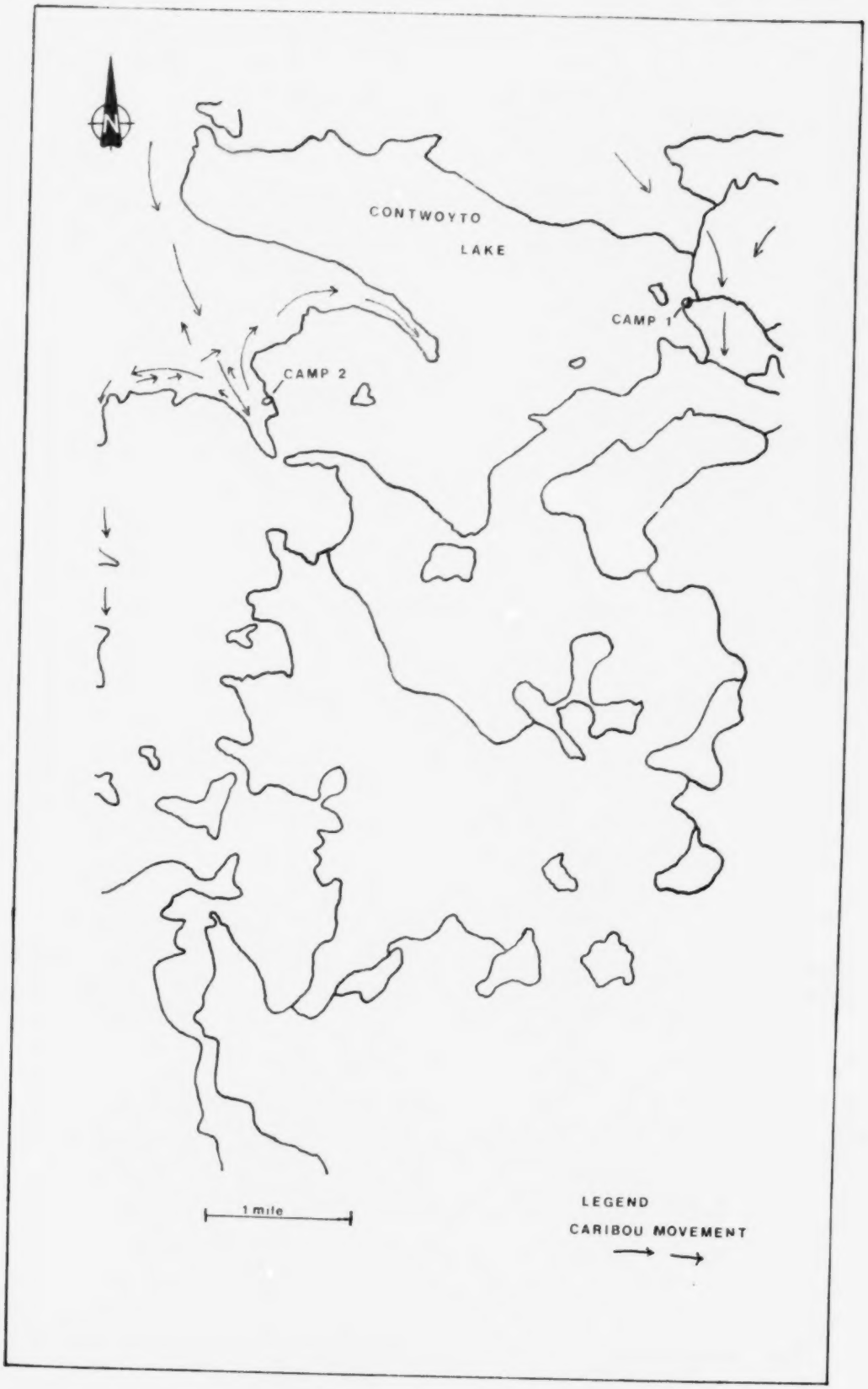

Figure 3. Direction of caribou movement.

Large groups of 50 to 200 caribou were difficult to handle in the water. The herds often split up with some animals returning to the north shore and others reaching the south shore. With groups of about 20 to 30 animals, there is less danger of cows and calves becoming separated.

CONCLUSIONS

1. The camp was established 4 or 5 days too late and most of the caribou had already passed Contwoyto Lake by July 26.

2. Contwoyto Lake is a good location to conduct a collaring operation if a barricade is established at the shallow crossing (Fig. 2).

3. A Zodiac inflatable boat is safe and dependable for this type of work.

4. The caribou did not appear to be affected by the collars.

5. The collars used were easily visible on the caribou and could be seen for over a mile with the naked eye.

6. The project provided employment for some of the hunters and trappers from the Yellowknife and Rae areas. It also afforded them the opportunity to view and participate in a caribou marking operation. There are now four experienced local people for future projects.

RECOMMENDATIONS

1. One three man crew should establish camp on the east shore of the peninsula north of the shallow crossing, Fig. 3, at least 2 days before the caribou reach this location. A barricade should be placed across the peninsula at this time.

2. A second three man crew and a cook should join the first crew at this camp prior to the caribou reaching this area.

3. Aircraft landing near the camp should use the beach and approach indicated in Figure 4. This may have to be adjusted as the water level fluctuates and the area is very rocky.

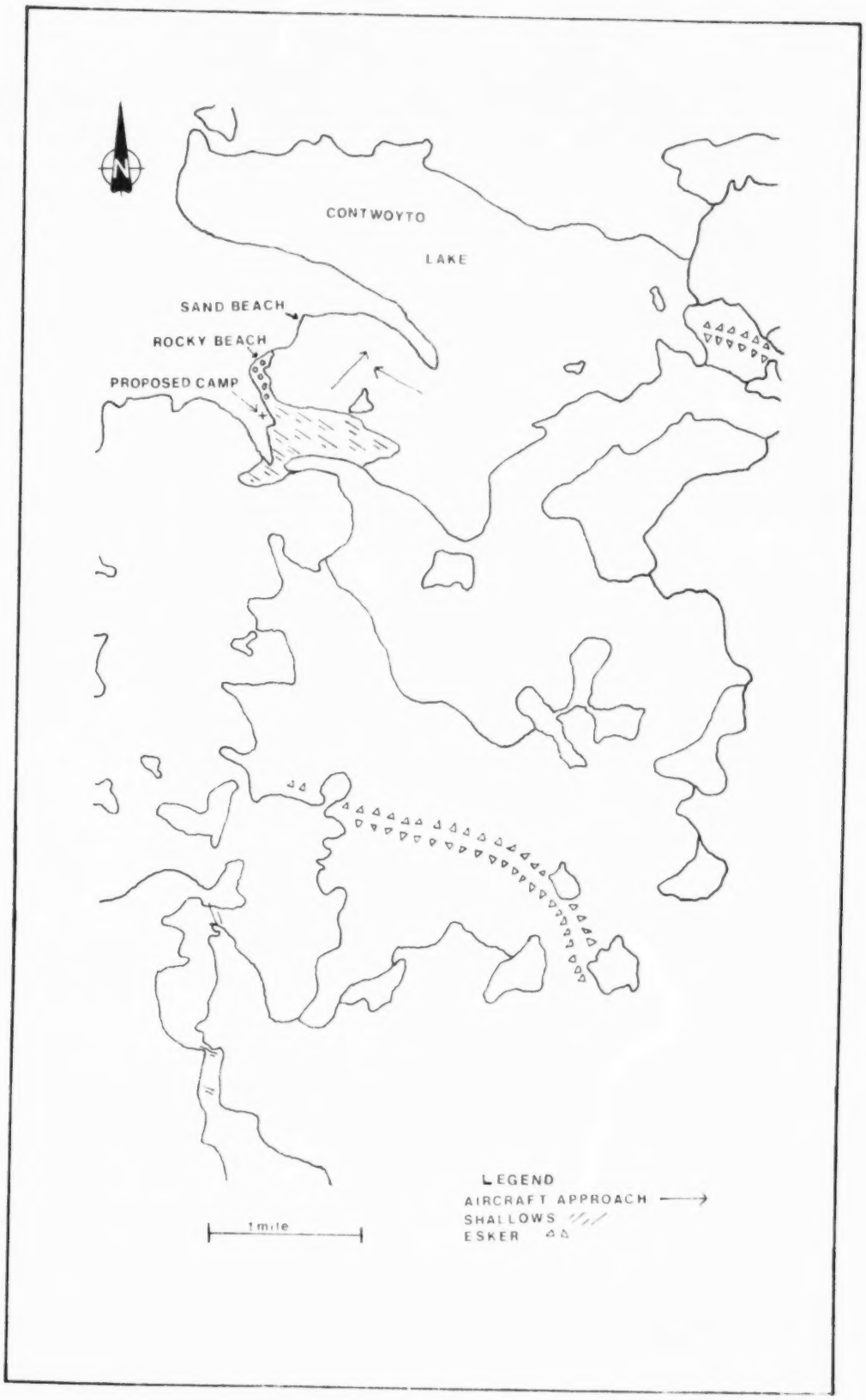

Figure 4. Proposed camp and aircraft approach.

4. If possible, a new type of collar should be devised with a self locking devise as the staplers were continually jamming up.

5. Several of the same crew should be employed as they were all capable and willing workers.

6. Crews should arrive at the tagging crossing when groups of less than 50 caribou are in the water. Small groups are easier to handle and there is less danger of separating cows and calves.

7. More time should be spent observing the effect of collars on the animals.

8. The possibility of collaring calves and/or bulls should be explored.

9. The length of time the collars can be expected to stay on and how many staples are required should be determined.

REFERENCES CITED

Hawley, V., A. Hawley, D. Poll and R. Brown. 1979. The Bluenose Caribou Herd, 1974-1976. Canadian Wildlife Service unpublished final report. 113 pp.

Miller, F.L. 1974. Biology of the Kaminuriak Population of barren-ground caribou. Part 2: Dentition as an indicator of age and sex; composition and socialization of the population. Canadian Wildlife Service Report Series No. 31. Ottawa, Ontario. 87 pp.

Nowosad, R.F. 1972. Canada Reindeer Project final report. Unpublished Canadian Wildlife Service Report, Edmonton, Alberta. 120 pp.

Parker, G.R. 1972. Distribution of barren-ground caribou harvest in northcentral Canada from ear-tag returns. Canadian Wildlife Service Occasional Paper No. 15. 19 pp.

Thomas, D.C.1960. Caribou tagging at Contwoyto Lake August 1960. Canadian Wildlife Service unpublished report. Edmonton, Alberta.

APPENDIX A. Day-by-day account of activities and observations at Contwoyto Lake.

July 26 - Weather; clear, calm, warm.

I arrived at Contwoyto Lake with the crew at 9:30 P.M. and began to establish a camp at 65° 17' N and 109° 40' W at the tip of an esker on the southeast corner of a bay. (Fig. 2).

A Twin Otter and a Turbo Beaver were used to transport men and equipment from Yellowknife.

The water was deep enough for the aircraft to land and unload west of the esker at Camp # 1.

Approximately 1,500 caribou were observed coming around the east end of the bay at this time.

July 27 - Weather; broken cloud, wind NE, gusting 15-25 mph.

An attempt was made to reach the shallow narrows with one of the Zodiacs. The water was too rough and the crew was forced to beach the boat on the south shore of the bay and walk back to camp. The remainder of the afternoon was spent erecting camp and trying to force the caribou to cross at the narrows rather than going around the east side of the bay.

Several rock cairns were erected between the east end of the bay and a small lake about 1 km to the east. Garbage bags were placed on top of these cairns, as well as at several locations on top of a ridge about 1 km to the northeast.

An attempt to herd the caribou back in a northwesterly direction proved fruitless. Any effort to force these animals in a desired direction is very difficult, if not impossible, without a large number of people, dogs or whatever. The cairns erected on top of the ridge may have deflected some animals towards the crossing, but this is unknown as the wind went down and all efforts were concentrated elsewhere.

Approximately 800 caribou crossed around the east side of the bay at this time.

Doug Heard dropped a message from a Cessna 185 advising it was too rough to land, there were caribou crossing at the shallow narrows and that he was returning to Yellowknife.

Both crews returned to Camp # 1 (Fig. 2). From the top of the esker about 300 caribou were observed crossing at the shallows. An attempt made to reach the crossing with the large Zodiac was successful and approximately 1500 caribou were chased back from the crossing. A barricade was erected using caribou antlers and flagging ribbon to deflect the caribou.

One crew of three men remained at the crossing until 5:00 A.M. chasing caribou back and reinforcing the barricade.

July 28 - Weather; broken cloud, cool, wind NW 10-20 mph.

In the late morning one tent was erected at the shallow crossing establishing Camp # 2 (Fig. 2).

A portion of the barrier was down and an adult bull caribou was found entangled in the cord and drowned.

Two muskoxen observed at the crossing were chased northwest away from the camp and the barrier. There were about 800 caribou north of the barrier at this time.

At about 4:00 p.m. caribou were observed entering the water at the tagging crossing. The tagging operation began with 20 animals being tagged.

A grizzly bear approaching Camp # 2 from the south was scared off with rifle shots. He was no doubt attracted to the location by the remains of the drowned caribou.

The remainder of the day was spent tagging caribou and chasing others back from the barrier. The last caribou were tagged at 11:30 p.m.

About 30 animals were observed swimming from a point west of Camp # 2 to a chain of islands in the main lake.

July 29 - Weather; cloudy, cool, wind NE 10-15 mph.

Chased about 30 caribou back from the barrier in the early morning, and noticed seven collared cows in the group.

The number of caribou around was noticeably less. Smaller groups, mostly cows and calves were collared at periodic intervals.

Two lone calves were observed at the crossing, they appeared separated from their mothers.

I walked south of tagging crossing about 1.5 km and found one dead cow with collar A9. The animal appeared very thin and a portion of it's lower lip was missing. This was an old scar partially healed. No shed collars were found.

August 1 - Weather; broken cloud, cold wind NE 20-25 mph. light snow.

Too windy to capture caribou. About 30 bulls Antoine Liske arrived from Yellowknife with a Cessna 185.

I used the aircraft to scout the area north and south around the bay where we were camped and then around Jolly and McKay Lakes. Twenty animals (but no collars) were observed north of McKay Lake.

August 2 - Weather; broken cloud, cold, wind NE 15-25 mph.

I flew around the area on the east side of Contwoyto Lake north of the camp for about 80 km. No caribou were observed.

Antoine Liske left for Yellowknife with the Cessna 185.

Too windy to capture caribou.

I noticed two crippled cows but did not attempt to capture caribou.

August 3 - Weather; clearing, cold, wind NE 15-20 mph.

We packed up and broke camp; loaded a Single Otter aircraft and departed for Yellowknife 3:00 p.m.

A large portion of the material and supplies were left for a later removal.

Four caribou were noted going around the east end of the bay as the aircraft departed.

Arrived at Yellowknife 5:15 p.m.

August 17

An attempt to reach Contwoyto Lake to pick up the remaining camp supplies was unsuccessful as aircraft was turned back because of heavy fog.

Ten caribou were observed west of Pellatt Lake. About 15 animals were spotted 1.5 km north of Lac de Gras.

August 19

Jim Bourque and I travelled to Contwoyto Lake via Tundra Mine with a Turbo Beaver.

A bear had scattered the camp cache and eaten or destroyed all food products. The remaining camp gear was returned to Yellowknife.

A fuel cache of 30 gallons outboard fuel was left over at Camp # 1.

A total of about 50 caribou were observed in scattered groups. Most of them were between Courageous Lake and Lac de Gras. One large bull was spotted just inside the treeline about 25 km south of Mohawk Lake.

APPENDIX B. Cost for Contwoyto collaring project 1979.

1.	Wages 4 men, 496 hrs. @ 6.45 hr.	$ 3,391.15
2.	Aircraft charter:	
	a) Transportation Twin Otter	$ 1,470.00
	Turbo Beaver	$ 854.00
	b) Reconnaissance Cessna 185	$ 1,005.00
	c) Single Otter	$ 996.00
	d) Attempted removal Turbo Beaver	$ 869.70
	Removal Turbo Beaver	$ 1,006.50
	Total	$ 5,257.05
3.	Food 6 men 8 days	$ 1,385.93
4.	Misc.	$ 381.62
5.	Gas and oil 8 drums @ $ 26.50	$ 242.00
	Total	$11,460.80

APPENDIX C. Recommended list of equipment for future collaring projects.

- 1,000 collars
- 2 boxes 1/4" Bostitch staples
- 8 staplers
- 3 tents
- 2 gas stoves
- 2 gas lamps
- 2,000 ft. of twine or light cord
- 2 rolls of flagging
- 1 bundle of lathes
- 2 Zodiacs
- 2 short shaft outboard motors 20-25 H.P.
- 90 gallons of mixed outboard fuel
- 10 gallons of naphtha
- 4 shepherd crooks (floats attached)
- 6 pairs of hip waders
- 6 rubber rain suits
- 3 pairs binoculars
- 1 radio
- 7 man mess kit
- first aid kit
- food for 7 men for 15 days
- exploding scaring devices.